

CLAIMS

1. A magnetic transfer method, comprising:

a first step of preparing a magnetic disk;

5 a second step of forming a layer of lubricant on the magnetic disk;

a third step of bringing the magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one side and magnetically transferring a pattern of the magnetic film on the magnetic transfer master onto the magnetic disk through application of an external 10 magnetic field; and

a fourth step of burnishing at least a surface of the magnetic disk that comes into contact with the magnetic transfer master,

wherein the first step, the fourth step, the second step, the fourth step, and the third step are performed in the stated order.

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2. The magnetic transfer method according to claim 1, wherein an amount of pressure applied by a lapping material onto the magnetic disk in a burnishing process in the fourth step performed after the first step is higher than an amount of pressure applied in a burnishing process performed after 20 the second step.

3. A magnetic transfer method, comprising the steps of:

bringing a magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one side;

25 magnetically transferring a pattern of the magnetic film on the magnetic transfer master onto the magnetic disk through application of an external magnetic field to the magnetic transfer master and the magnetic disk in close contact with one another; and

optically detecting defects in the surface of the magnetic disk,

30 wherein the magnetic transfer step is performed immediately after confirming in the optically detecting step that one of a number of defects on the surface of the magnetic disk and a size of the defects on the surface of the magnetic disk is not greater than a predetermined value.

35 4. A magnetic transfer apparatus, comprising:

contacting means for bringing a magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one

side;

transfer means for magnetically transferring a pattern of the magnetic film on the magnetic transfer master onto the magnetic disk through application of an external magnetic field to the magnetic disk and 5 magnetic transfer master in close contact with one another; and

defect detecting means for optically detecting defects on a surface of the magnetic disk,

wherein the contacting means and magnetic transfer means perform 10 magnetic transfer immediately after the defect detecting means has confirmed that one of a number of defects on the surface of the magnetic disk and a size of the defects on the surface of the magnetic disk is not greater than a predetermined value.

5. A magnetic transfer method, comprising the steps of:

15 bringing a magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one side;

magnetically transferring a pattern of the magnetic film on the magnetic transfer master onto the magnetic disk through application of an external magnetic field to the magnetic transfer master and the magnetic 20 disk in close contact with one another; and

detecting defects in the magnetic disk by scanning the magnetic disk with a detection head that floats a predetermined distance above the surface of the magnetic disk,

wherein the detecting step is performed after the magnetic transfer 25 step.

6. The magnetic transfer method according to claim 1, further comprising a fifth step of detecting defects in the magnetic disk by scanning the magnetic disk with a detection head that floats a predetermined distance 30 above the surface of the magnetic disk,

wherein the fifth step is performed after the third step.

7. The magnetic transfer method according to claim 6, wherein an amount of pressure applied by a lapping material onto the magnetic disk in a burnishing process in the fourth step performed after the first step is higher 35 than an amount of pressure applied in a burnishing process performed after the second step.

8. A magnetic transfer method comprising bringing a magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one side, and transferring magnetically a pattern of the magnetic film on the magnetic transfer master onto the magnetic disk through application of an external magnetic field, the method including a defect detecting step for detecting defects in a disk, wherein

5 after the defect detecting step has confirmed that one of a number of defects on the surface of a cleaning disk and a size of the defects on the surface of the cleaning disk is not greater than a predetermined value, the cleaning disk is brought into close contact and separated from the magnetic transfer master a predetermined number of times, before the magnetic transfer master is brought into close contact with the magnetic disk and magnetic transfer is performed.

10 15 9. A magnetic transfer method comprising bringing a magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one side, and transferring magnetically a pattern of the magnetic film on the magnetic transfer master onto the magnetic disk through application of an external magnetic field, the method including a defect detecting step for detecting defects in a disk, wherein

20 25 after a cleaning disk has been brought into close contact and separated from the magnetic transfer master a predetermined number of times, the magnetic transfer master is brought into close contact with a detection disk, the detection disk having been subjected to the defect detecting step to confirm, for a surface of the detection disk that comes into contact with the magnetic transfer master, that one of a number of defects and a size of the defects is not greater than a predetermined value, and

30 the detection disk is then subjected to the defect detecting step and when the defect detecting step confirms that one of a number of defects on a surface and a size of the defects is not greater than a predetermined value, the magnetic disk and the magnetic transfer master are brought into close contact and magnetic transfer is performed.

35 10. A magnetic transfer method comprising bringing a magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one side, and transferring magnetically a pattern of the magnetic

film on the magnetic transfer master onto the magnetic disk through application of an external magnetic field, the method including a defect detecting step for detecting defects in a disk, wherein

5 the magnetic transfer master is brought into close contact and separated from a cleaning disk a predetermined number of times, the cleaning disk having been subjected to the defect detecting step to confirm, for a surface of the cleaning disk that comes into contact with the magnetic transfer master, that one of a number of defects and a size of the defects is not greater than a predetermined value,

10 the magnetic transfer master is then brought into close contact with a detection disk, the detection disk having been subjected to the defect detecting step to confirm, for a surface of the detection disk that comes into contact with the magnetic transfer master, that one of a number of defects and a size of the defects is not greater than a predetermined value, and

15 the detection disk is then subjected to the defect detecting step and when the defect detecting step confirms that that one of a number of defects on a surface and a size of the defects is not greater than a predetermined value, the magnetic disk and the magnetic transfer master are brought into close contact and magnetic transfer is performed.

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11. A magnetic transfer method comprising bringing a magnetic disk into close contact with a magnetic transfer master having a magnetic film formed on at least one side, and transferring magnetically a pattern of the magnetic film on the magnetic transfer master onto the magnetic disk through application of an external magnetic field, the method including a defect detecting step for detecting defects in a disk, wherein

25 after the pattern of the magnetic film on the magnetic transfer master has been magnetically transferred onto the magnetic disk, the magnetic disk is subjected to the defect detecting step, and when one of the number of defects and size of defects is equal or greater than a predetermined value, the magnetic transfer master is brought into close contact with and separated from a cleaning disk a predetermined number of times.

30 12. The magnetic transfer method according to any of claims 8, 9, and 11, wherein the magnetic transfer master and cleaning disk are brought into close contact by evacuating a gas between the magnetic transfer master and cleaning disk and the magnetic transfer master and cleaning disk are

separated by introducing a gas between the magnetic transfer master and cleaning disk.

13. The magnetic transfer method according to any of claims 8, 9, and 11,

5 wherein the magnetic transfer master is harder than the magnetic disk and the cleaning disk.

14. The magnetic transfer method according to any of claims 8, 9, and 11, wherein the cleaning disk is softer than the magnetic disk.

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15. The magnetic transfer method according to any of claims 8, 9, and 11, wherein a region where there is contact between the magnetic transfer master and the cleaning disk includes a region where magnetic transfer is performed from the magnetic transfer master to the magnetic disk.

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16. The magnetic transfer method according to any of claims 8, 9, and 11, wherein in the process that the magnetic transfer master disk is brought into close contact and separated from the cleaning disk, the cleaning disk having no lubricant applied is used so as to remove foreign matter from the magnetic transfer master.

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17. The magnetic transfer method according to any of claims 8, 9, and 11, wherein the cleaning disk has a plating layer on its surface.

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18. The magnetic transfer method according to claim 17, wherein the plating layer has magnetic characteristics.

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19. The magnetic transfer method according to any of claims 8 to 11, wherein the surface of the magnetic disk is subjected to the defect detection process before magnetic transfer is performed, and immediately after confirming that one of a number of defects and a size of defects is not greater than a predetermined value, the magnetic disk is brought into close contact with the magnetic transfer master and magnetic transfer is performed.